

Remarks

The Applicants acknowledge the restriction requirement dividing the Application into Group I, including Claims 1 – 22, and Group II, including Claims 23 – 27. The Applicants reaffirm their earlier election of Group I, including Claims 1 – 22. Claims 23 – 27 have been cancelled to facilitate early allowance. Applicants specifically reserve the right to file one or more divisional applications directed to the cancelled subject matter. Claim 16 has been amended to correct a minor typographical error.

Turning now to the merits, the Applicants acknowledge the rejection of Claims 1, 6 and 17 as being anticipated by JP '628. Although there may appear to be several superficial similarities between the hollow fiber module of JP '628 and the hollow fiber membrane module of Claims 1, and 17, the Applicants respectfully submit that such superficial similarities are sufficiently different such that the anticipation rejection cannot be sustained.

In that regard, JP '628 does not disclose, either explicitly or implicitly, every claimed aspect of the invention as recited in Claims 1, 6 and 17. Especially as to Claim 1, the situation is shown in the attached Table A. It is shown in Table A that whether each of the elements defined in Claim 1 is disclosed or not in JP '628 with the mark "Yes" or "No".

The element (j) defined in Claim 1 is not disclosed in JP '628. In the invention a raw water supply port is provided at the cylindrical case, in contrast to that, in the module disclosed in JP '628 a raw water supply port is provided at a cap (a second cap)(2). It is, therefore, clear that JP '628 fails to disclose the element (j).

The element (k) defined in Claim 1 is not disclosed in JP '628. In the invention an air discharge port is provided at the cylindrical case. JP '628 has no disclosure regarding an air

discharge port. Although in the module disclosed in JP '628 a first side port (91) and a second side port (92) are provided at the cylindrical case (4), however, it is explained in JP '628 that those ports (91, 92) are used for discharging concentrate or over volume of raw water from the filtration chamber (P). It is, therefore, clear that JP '628 also fails to disclose the element (k).

The element (l) defined in Claim 1 is not disclosed in JP '628. In the invention fluid flow holes are provided in the second sealing body to flow air and drain. Although in the module disclosed in JP '628 a sealing body (a second sealing body) (6) is provided with passages (openings)(61), however, those passages (61) are used for flowing of raw water supplied from the raw water supply port (21) from the second chamber in the second cap (2) to the filtration chamber (P). It is, therefore, clear that JP '628 also fails to disclose the element (l).

The element (n) defined in Claim 1 is not disclosed in JP '628. In the invention a drain port is provided at the second cap. Although the module disclosed in JP '628 has a drain port, that is, the first side port (91) or the second side port (92), however, it is provided at the cylindrical case (4). It is, therefore, clear that JP '628 further fails to disclose the element (n).

The above elements of the invention which are not disclosed in JP '628 bring unique functions and results. The unique functions and results are explained at the first and second paragraphs on page 7 or the second and third paragraphs on page 28 of the Specification of the present Application. And further the functions and results are summarized at the first and second paragraphs on page 51 of the Specification of the present Application. JP '628 fails to teach such functions and results brought by the invention.

From the above review, the Applicants believe that there is a serious deficiency in JP '628 and the anticipation rejection of Claims 1, 6/1 and 17/1 based on JP '628 is untenable. The

Applicants accordingly respectfully request withdrawal of the 35 U.S.C. §102(b) rejection of Claims 1, 6 and 17 based on JP '628.

The Applicants also acknowledge the rejection of Claims 1 – 5, 8 and 9 as being anticipated by JP '507. Unfortunately, JP '507 is also deficient. JP '507 does not disclose, either explicitly or implicitly, every claimed aspect of the invention as recited in Claims 1 – 5, 8 and 9. Especially as to Claim 1, the situation is shown in the attached Table B. It is shown in Table B that whether each of the elements defined in Claim 1 is disclosed or not in JP '507 with the mark "Yes" or "No".

The element (e) defined in Claim 1 is not disclosed in JP '507. The element (e) calls for a second sealing body provided for sealing the other end of the cylindrical case in addition to a second cap provided for cylindrical case outside the second sealing body. Although JP '507 discloses a second cap having an air injection port (6) for the other end of the cylindrical case (1), there is no second sealing body provided for sealing the other end of the cylindrical case (1). There is only a single sealing body (3) in JP '507. For this reason alone, JP '507 cannot support the anticipation rejection.

It, therefore, naturally follows that JP '507 fails to disclose the claimed second chamber formed by the inner wall surface of the second cap and the outer wall surface of the second sealing body as shown in Table B. Inasmuch as there is no second sealing body, there can be no second chamber as also shown in Table B.

Form the above review, the Applicants believe that there is a serious deficiency in JP '507 and the anticipation rejection of Claims 1, 2/1, 3/1, 4/3/1, 5/4/3/1, 8/1, 8/2/1, 9/8/1 and 9/8/2/1, that are, Claims 1 – 5, 8 and 9 based on JP '507 is untenable. The Applicants accordingly respectfully request withdrawal of the 35 U.S.C. §102(b) rejection of Claims 1 – 5, 8 and 9 based on JP '507.

The Applicants acknowledge the rejection of Claim 7 as being obvious over JP '507. Unfortunately, the deficiencies of JP '507, as noted above with respect to Claims 1 – 5, 8 and 9, apply to Claim 7. This is especially true in view of the Examiner's frank acknowledgment that JP '507 does not teach a further limitation of a check valve as recited in Claim 7. Unfortunately, there is no teaching or suggestion in JP '507 with respect to a second sealing body and/or a second chamber. Thus, even if it were obvious to one of ordinary skill in the art to utilize a check valve as recited specifically in Claim 7, this would not cure the fundamental deficiency of JP '507 as it applies to the independent claim upon which Claim 7 is based. Withdrawal of the 35 U.S.C. §103 rejection of Claim 7, based on JP '507, is accordingly respectfully requested.

The Applicants acknowledge the rejection of Claim 10 as being obvious over the hypothetical combination of US '264 with JP '507. The Applicants respectfully submit that, despite the fact that US '264 may teach non-lead thermal stabilizers for PVC, it does not cure the fundamental deficiency associated with JP '507 as it applies to the independent claim from which Claim 10 is based. In other words, even if one of ordinary skill in the art were to hypothetically combine US '264 with JP '507, the resulting structure would still fail to teach or suggest a second sealing body provided for sealing the other end of the cylindrical case and a second chamber formed by the inner wall surface of the second cap and the outer wall surface of the second sealing body. Withdrawal of the rejection of Claim 10 based on the hypothetical combination of US '264 with JP '507 is accordingly respectfully requested.

Essentially, the same logic applies to the rejection of Claims 11 and 12 based on the hypothetical combination of US '047 and US '917 with JP '507. Neither of US '047 or US '917 cure the deficiencies of JP '507 with respect to a second sealing body and a second chamber. Therefore, even

if one of ordinary skill in the art were to make the hypothetical combination, the resulting structure would still be devoid of the second sealing body and the second chamber. Withdrawal of the rejection of Claims 11 and 12 based on the hypothetical combination of US '047 and US '917 with JP '507 is respectfully requested.

The rejection of Claims 13 – 16 based on the hypothetical combination of US '756 with JP '507 is acknowledged. Unfortunately, US '756 also fails to teach or suggest a second sealing body and/or a second chamber. Accordingly, even if one of ordinary skill in the art were to make the hypothetical combination of US '756 with JP '507, the resulting structure would still not include, not teach and not suggest a second sealing body and a second chamber. Accordingly, the hypothetical combination cannot support the rejection of Claims 13 – 16. Withdrawal of the rejection is respectfully requested.

Finally, the Applicants acknowledge the rejection of Claims 18 – 22 over the hypothetical combination of US '528 with JP '628. As noted above with respect to Claim 1, JP '628 fails to disclose a raw water supply port formed in the cylindrical case, an air discharge port formed in the cylindrical case, fluid flow holes for allowing the flow of air and drain formed in the second sealing body, and a drain port formed in the second cap respectively. Unfortunately, US '528 fails to cure this fundamental deficiency in JP '628. Accordingly, even if one of ordinary skill in the art were to make the hypothetical combination of US '528 with JP '628, the resulting structure would still not include a raw water supply port formed in the cylindrical case, an air discharge port formed in the cylindrical case, fluid flow holes for allowing the flow of air and drain formed in the second sealing body, and a drain port formed in the second cap respectively. The Applicants accordingly respectfully submit that Claims 18 – 22 are patentable over the hypothetical combination.

Withdrawal of the rejection of Claims 18 – 22 is respectfully requested.

Table A for showing comparison between the elements defined in Claim 1 and the elements disclosed in JP '628 and Table B showing comparison between the elements defined in Claim 1 and the elements disclosed in JP '507 are respectively attached hereto.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



T. Daniel Christenbury
Reg. No. 31,750
Attorney for Applicants

TDC:lh
(215) 656-3381

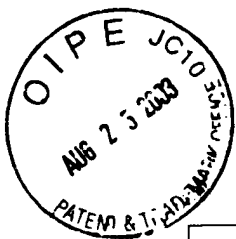


Table A
showing comparison
between the elements defined Claim 1 and the elements disclosed in JP 09-187628

U.S. Serial No. 10/088,659 filed 03/02/2002	JP 09-187628	
Claim 1		
A hollow fiber membrane module (50)	Yes	A hollow fiber membrane module (1)
(a) a cylindrical case (1)	Yes	a cylindrical case (4)
(b) a first sealing body (3A) provided for sealing one end of the cylindrical case (1)	Yes	a first sealing body (7) provided for sealing one end of the cylindrical case (4)
(c) a second sealing body (3B) provided for sealing the other end of the cylindrical case (1)	Yes	a second sealing body (6) provided for sealing the other end of the cylindrical case (4)
(d) a first cap (1Ca) provided for the cylindrical case (1) outside the first sealing body (3A)	Yes	a first cap (3) provided for the cylindrical case (4) outside the first sealing body (7)
(e) a second cap (1Cb) provided for the cylindrical case (1) outside the second sealing body (3B)	Yes	a second cap (2) provided for the cylindrical case (4) outside the second sealing body (6)
(f) a filtration chamber (4) formed by the inner wall surface of the first sealing body (3A), the inner wall surface of the second sealing body (3B) and the inner wall surface of the cylindrical case (1)	Yes	a filtration chamber (P) formed by the inner wall surface of the first sealing body (7), the inner wall surface of the second sealing body (6) and the inner wall surface of the cylindrical case (4)
(g) a first chamber (7) formed by the inner wall surface of the first cap (1Ca) and the outer wall surface of the first sealing body (3A)	Yes	a first chamber formed by the inner wall surface of the first cap (3) and the outer wall surface of the first sealing body (7)
(h) a second chamber (9) formed by the inner wall surface of the second cap (1Cb) and the outer wall surface of the second sealing body (3B)	Yes	a second chamber formed by the inner wall surface of the second cap (2) and the outer wall surface of the second sealing body (6)
(i) a hollow fiber membrane bundle (3) accommodated in the filtration chamber (4) and attached to the first sealing body (3A), with one end of the bundle (3) opened toward the first chamber (7), and attached to the second sealing body (3B), with the other end of the bundle (3) closed against the second chamber (9); or attached to the first sealing body (3A), with both the ends of the bundle (3) opened toward the first chamber (7), the entire bundle being curved in U-shape	Yes	a hollow fiber membrane bundle (5) accommodated in the filtration chamber (P) and attached to the first sealing body (7), with one end of the bundle (5) opened toward the first chamber, and attached to the second sealing body (6), with the other end of the bundle (5) closed against the second chamber
(j) a raw water supply port (5) formed in the cylindrical case (1) and opened toward the filtration chamber (4) at a position near the second sealing body (3B)	No	no element corresponding to the element (j) * a raw water supply port (21) formed in the second cap (2) and opened toward the second chamber and connected to the filtration chamber (P) through passages (61)
(k) an air discharge port (6) formed in the cylindrical case (1) and opened toward the filtration chamber (4) at a position near the first sealing body (3A)	No	no element corresponding to the element (k) * a first side port (91) and a second side port (92) are for discharging concentrate or over volume of raw water (drain) from the filtration chamber (P)
(l) fluid flow holes (11) for allowing the flow of air and drain, formed in the second sealing body (3B) through the second sealing body (3B) from the filtration chamber (4)	N	n element corresponding to the element (l) * the passages (61) is for allowing the flow of raw water

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(m) a filtrate delivery port (8) formed in the first cap (1Ca) and opened toward the first chamber (7)	Yes	a filtrate delivery port (31) formed in the first cap (3) and opened toward the first chamber
(n) a drain port (10) <u>formed in the second cap (1Cb) and opened toward the second chamber (9)</u>	No	n element corresponding to the element (n) * though the first and second side ports (91, 92) are drain ports but those are <u>formed in the cylindrical case (4) and opened toward the filtration chamber (P)</u>

Table B
showing comparison
between the elements defined in Claim 1 and the elements disclosed in JP 11-319507

U.S. Serial No. 10/088,659 filed 03/02/2002	JP 11-319507	
Claim 1		
A hollow fiber membrane module (50)	Yes	A hollow fiber membrane module
(a) a cylindrical case (1)	Yes	a cylindrical case (1)
(b) a first sealing body (3A) provided for sealing one end of the cylindrical case (1)	Yes	a first sealing body (3) provided for sealing one end of the cylindrical case (1)
(c) a second sealing body (3B) provided for sealing the other end of the cylindrical case (1)	No	no element corresponding to the element (c) * an air injection port (6) is directly opened toward a filtration chamber formed by the inner wall surface of the first sealing body (3), the inner wall surface of a second cap having the air injection port (6) and the inner wall surface of the cylindrical case (1) and therefore, there is no second sealing body therein.
(d) a first cap (1Ca) provided for the cylindrical case (1) outside the first sealing body (3A)	Yes	a first cap having a filtrate delivery port (8) provided for the cylindrical case (1) outside the first sealing body (3)
(e) a second cap (1Cb) provided for the cylindrical case (1) outside the second sealing body (3B)	No	no element corresponding to the element (e) * a second cap having the air injection port (6) is provided for the cylindrical case (1) but has no relation with a second sealing body, since there is no second sealing body therein
(f) a filtration chamber (4) formed by the inner wall surface of the first sealing body (3A), the inner wall surface of the second sealing body (3B) and the inner wall surface of the cylindrical case (1)	No	no element corresponding to the element (f) * a filtration chamber exists but it is formed by the inner wall surface of the first sealing body (3), the inner wall surface of the second cap and the inner wall surface of the cylindrical case (1)
(g) a first chamber (7) formed by the inner wall surface of the first cap (1Ca) and the outer wall surface of the first sealing body (3A)	Yes	a first chamber formed by the inner wall surface of the first cap and the outer wall surface of the first sealing body (3)
(h) a second chamber (9) formed by the inner wall surface of the second cap (1Cb) and the outer wall surface of the second sealing body (3B)	No	no element corresponding to the element (h) * there is no second chamber therein, since there is no second sealing body therein
(i) a hollow fiber membrane bundle (3) accommodated in the filtration chamber (4) and attached to the first sealing body (3A), with one end of the bundle (3) opened toward the first chamber (7), and attached to the second sealing body (3B), with the other end of the bundle (3) closed against the second chamber (9); or attached to the first sealing body (3A), with both the ends of the bundle (3) opened toward the first chamber (7), the entire bundle being curved in U-shape	Yes	a hollow fiber membrane bundle (2) accommodated in the filtration chamber and attached to the first sealing body (3), with both the ends of the bundle (2) opened toward the first chamber, the entire bundle being curved in U-shape

(j) a raw water supply port (5) formed in the cylindrical case (1) and opened toward the filtration chamber (4) at a position near the second sealing body (3B)	No	no element corresponding to the element (j) * a raw water supply port (5) is formed in the cylindrical case (1) and opened toward the filtration chamber but has no relation with a second sealing body, since there is no second sealing body therein
(k) an air discharge port (6) formed in the cylindrical case (1) and opened toward the filtration chamber (4) at a position near the first sealing body (3A)	Yes	an air discharge port (7) formed in the cylindrical case (1) and opened toward the filtration chamber at a position near the first sealing body (3)
(l) fluid flow holes (11) for allowing the flow of air and drain, formed in the second sealing body (3B) through the second sealing body (3B) from the filtration chamber (4)	No	no element corresponding to the element (l) * there is no fluid flow holes, since there is no second sealing body therein
(m) a filtrate delivery port (8) formed in the first cap (1Ca) and opened toward the first chamber (7)	Yes	a filtrate delivery port (8) formed in the first cap and opened toward the first chamber
(n) a drain port (10) formed in the second cap (1Cb) and opened toward the second chamber (9)	No	no element corresponding to the element (n) * though the air discharge port (7) is also a drain port but it is formed at the upper portion of the cylindrical case (1) and opened toward the filtration chamber